UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,332	10/03/2003	Alain Franchi	91475//MGB	8772

1333 7590 09/08/2006

PATENT LEGAL STAFF
EASTMAN KODAK COMPANY
343 STATE STREET
ROCHESTER, NY 14650-2201

EXAMINER	
WOODS, ERIC V	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/677,332	Applicant(s) FRANCHI ET AL.
	Examiner Eric Woods	Art Unit 2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26 and 28-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26 and 28-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 5/15/2006 have been fully considered but they are not persuasive with respect to some issues.

The Office accepts that the last response was a bona fide attempt to advance prosecution as per 37 C.F.R. 1.135(c) and that such admission was inadvertent and unintentional. Therefore, the finality of the denial of domestic priority is withdrawn. [It is noted that any petition under 37 CFR 1.181(a) needs to be on a **separate** sheet of paper, rather than as a duplicate, since it would not otherwise be recognized as a petition, and petitions (except for extensions of time) must be filed as separate papers. Also, for this instance, the appropriate regulation would be 37 C.F.R. 1.181(a)(1), since the last constituted 'an action or requirement of any examiner ... not subject to appeal to the BPAI.' It is noted, however, that the BPAI does review denials of domestic priority *per se*, since the questions involved are questions of law regarding the sufficiency of disclosure with respect to 35 U.S.C. 112, particularly the first paragraph. However, the instant case regarded an action of the examiner (finality of a requirement) that the BPAI does not review.]

As such, upon consideration of applicant's arguments, examiner grants the domestic priority claim for claims 3, 7, 9, 11-12, 14, 18, 21, 23-33, and 37, since support is found at the locations in the provisional cited by applicant in Remarks pages 1-3.

The domestic priority claim for claims 19, 46-48, and 51 is accepted, again based on the fact that applicant has pointed out where such claims have support.

The rejection of claim 28 under 35 USC 112, second paragraph, stands withdrawn in view of applicant's amendment.

HOWEVER, applicant's arguments filed 5/15/2006 have been fully considered but they are not persuasive with respect to the rejection of claims 1-53 under 35 USC 103(a).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant has devoted the majority of the arguments to doing so, where examiner rebuts as below.

Firstly, examiner submits that the Long patent was used only to support the limitation that two graphics rasters exist, one for the selection graphic and one for the base graphic. As applicant notes on pages 5-6 of Remarks, Long does not state the format of graphics data stored therein. Examiner submits that applicant's arguments with regard to the structure of the Long reference are beside the point. The other facets of the Long reference are not important, because they were not relied upon, except the teaching that only a selected area plus a guard band is copied when the user selects an area for manipulation. Therefore, the method of operation of the Long reference – by itself – is not relevant to the rejection of claims 1, 52, and 53 under 35 USC 103(a). The fact that Long could hold any kind of data, raster or otherwise, is duly noted. Therefore,

a PHOSITA would look to the primary reference for a definition of the kind of data would be held in such buffers.

Applicants then proceed then to state that they have found no teaching or suggestion in Kinoe of rasterized vs. non-rasterized formats. Examiner points out that applicant admits on page 4 of Remarks, middle paragraph: "... It is to be understood...that the scope of Claim 1 is not limited...to vector representations, and only requires that the selection graphic data be provided in a non-rasterized format." Examiner submits that Kinoe teaches a 3D CAD system. Such a CAD system stores data in three-dimensional format, e.g. the data is **not** in raster format (see Figure 5, for example, where it is a "Graphic Object Hierarchy Definition Data". That means that the items on the list are **graphical objects**. Next, as noted in 1:5-2:30, such objects are **three-dimensional**. Therefore, inherently, they cannot be raster data since raster data is two-dimensional, and there is no discussion of textures.

Kinoe teaches the following (3:15-25):

In the claims of this specification, the term "hierarchical attribute information" is information for specifying the hierarchical relationship between the graphical objects. The term "display attribute" as used in the claims of this specification is a concept including **non-display, translucent display, highlighted display, translucent highlight display, and blink display, etc.** The expression "ordered depending on graphic definition information" as used in the claims of this specification is a concept including not only ordering graphic definition information by sorting it in a reference plane but also ordering graphical objects using the graphic definition information based on a predetermined rule.

As such, the **objects** themselves have such attributes, where these are three-dimensional objects. As such, examiner submits that clearly such a three-dimensional object is clearly "non-rasterized graphical data". Clearly, the highlighted attribute is different than the translucent attribute, as well as the blink attribute. Kinoe is **NOT** limited to the embodiment described on page 6 of Remarks. Kinoe rather allows the user to manipulate the model to select desired parts, see the underlying structure, and the like. Elements are not automatically deleted. 9:45-65 provides that objects are normally displayed in one of four modes: normal display, non-display, a translucent display, and a highlighted translucent display (with clearly a highlighted display contemplated as well, as noted above, when describing "display attributes" in the very definitions of the specification.) 10:1-20 discusses the highlighted translucent display, but such objects **are still visible**, because (16:48-60) highlighted translucent state is not invisible. Objects are switched to non-display if that is the case. Objects can be given such attributes in other cases than that described by Figures 13-16. See specifically 12:20-30, where multiple windows can be open viewing the same object, and the changes can be watched, where it is contemplated that objects will be cycled through various states by themselves.

Applicant's remarks pages 6-7 devote themselves to discussing whether or not the graphics data is presented in a non-rastered format. Examiner submits that clearly **graphical objects that are three-dimensional** are clearly **NOT** raster data, and have to be rasterized in order to be visible.

The final thrust of applicant's arguments consists of the fact that the combination would not necessarily be operable to function in the manner suggested by claim 1. Examiner submits that applicant never attacks the motivation / suggestion / teaching for combination directly, but merely analyzes it assuming *arguendo* that it is true.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as noted above, the copying operation saves memory bandwidth and is known to be more efficient. Long very clearly teaches copying an original image to a first data store, and then allowing the user to select a certain portion of it and transferring only that portion to a second data store where it is manipulated. Then the user applies or paints the modified region back to the original image such that only that region is transferred between the data stores, thus speeding up the process since a much smaller amount of data has to be transferred. It is well established that it is not invention to automate a process previously done manually (Venner, In re, 262 F.2d 91, 120 USPQ 193 (CCPA 1958). See MPEP 2144.04). Therefore, having the computer perform such a task e.g. the

specific modification of Long (a certain effect) and then the transfer and composition back would have been an obvious expedient.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the order of rasterization per se) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Specifically, clearly a base graphics raster or image must always exist. The idea of highlight an object inherently and intrinsically depends upon the existence of the object in an unhighlighted or normal state. Therefore, the base graphics raster would always be generated first, since it would have to exist in order to provide the user with an object to highlight.

Kinoe is **NOT** silent on this point – the data is not rasterized initially because it consists of three-dimensional graphic objects, which are not handled as two-dimensional raster planes because they are not two-dimensional graphics.

Long clearly teaches that different graphic elements are processed separately. As noted in the last Action, Long clearly teaches that selected graphics data is rasterized and stored in a second data store 25 (Figure 1, 4:53-60). The data is prima facie rasterized, since it initially constitutes only a copy of the relevant portions of the selected graphics. In prior art systems, the entire first store 17 was copied to the

second store 25 to be modified (see 4:60-5:26). However, Long teaches that the user executes shift and magnify commands to obtain the desired portion of the first image to manipulate (5:27-45). Finally, only the relevant or selected area is copied to second data store 25, with the addition of a guard band (5:46-62), where the user can manipulate it.

Therefore, it clearly would be obvious to separate the selected area or object and to process it separately since it takes less memory bandwidth. Applying this technique to the system of Kinoe would make sense for those reasons, where clearly such a combination would then combine the highlighted object and the main graphics raster to produce the desired output, since the highlighted data would prima facie exist in the separate buffer and would have to be recombined in order to be visible to the user.

Examiner submits that for at least the above reasons the independent claims are not patentable. The dependent claims are unpatentable for the reasons set forth in the last Action, which are repeated below. Therefore, examiner believes that a *prima facie* case was made in the last action and that it is still valid.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 21-22, 44, and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoe (US 6,337,700) in view of Long et al (US 5,276,786).

Firstly, examiner would like to point out that raster layers in graphics are well known in the art and have been for many years; for example, Priem et al (US 4,958,146), assigned to Sun Microsystems, which teaches the use of 8 raster graphics layers or planes – see Fig. 3 for an example of this. It is further well known that such objects can be composited in selective combinations – see for example Priem Abstract and 1:5-2:15 (Boolean operations upon layers for compositing purposes, and foreground/background operations). Such information is herein proven to be within the scope and knowledge of the prior art and thusly would be prima facie known to one of ordinary skill in the art (therefore meeting the standards of *Graham v. Deere* inquiry re: PHOSITA level).

As to claims 1, 52, and 53, (method, system, computer-program product) A computer-implemented method for highlighting a selected object on a display, the method comprising:

-Rasterizing base graphic data to provide a base graphic raster, the base graphic raster including a selected graphic object to be highlighted; (Kinoe teaches in 3:15-30 various types of displays, and uses the term 'translucent' to mean 'transparent' in certain contexts, for example in 9:57-10:30 it is clearly taught that the graphical objects can be in highlighted, translucent, and/or translucent highlighted modes. Obviously, each object has properties and is selectable, since it contains depth information, as is well known in the art, and as taught by Kinoe in 9:40-58 (see Kang as cited above for proof of that).)(Long teaches that graphics data is held in a data store representing pictures – clearly such data is rasterized in order to be held in memory if it represents the image (2:45-68, as an example). The original image is stored in the first data store 17 (Figure 1, 4:30-60), which clearly constitutes the 'base graphic raster' as recited therein.)

-Providing selection graphic data including a graphic object corresponding to the selected graphic object; (Kinoe clearly allows the user to select graphic objects – see Abstract, 1:5-2:25, Figs. 13-15, and many other locations, and the user can manipulate a menu to locate the specific component – 2:38-55. Clearly, the graphic object could be on its own graphics layer.) (Long clearly teaches that selected graphics data is rasterized and stored in a second data store 25 (Figure 1, 4:53-60). The data is prima facie rasterized, since it initially constitutes only a copy of the relevant portions of the selected graphics. In prior art systems, the entire first store 17 was copied to the second store 25 to be modified (see 4:60-5:26). However, Long teaches that the user executes shift and magnify commands to obtain the desired portion of the first image to manipulate (5:27-45). Finally, only the relevant or selected area is copied to second

data store 25, with the addition of a guard band (5:46-62), where the user can manipulate it.)

-Rasterizing the selection graphic data to yield a selection graphic raster; and (Long clearly teaches that selected graphics data is rasterized and stored in a second data store 25 (Figure 1, 4:53-60). The data is prima facie rasterized, since it initially constitutes only a copy of the relevant portions of the selected graphics. In prior art systems, the entire first store 17 was copied to the second store 25 to be modified (see 4:60-5:26). However, Long teaches that the user executes shift and magnify commands to obtain the desired portion of the first image to manipulate (5:27-45). Finally, only the relevant or selected area is copied to second data store 25, with the addition of a guard band (5:46-62), where the user can manipulate it.)

-Compositing the base graphic raster and the selection graphic raster to yield an output graphic raster for display. (Long teaches (5:61-6:26) that the user can then paint the selected portion of the first image that has been altered that is present in data store 25 using the stylus and that such a portion of image is then blended and/or overwritten in the original image, and that the composite image is then output to the monitor.)(Kinoe's graphical objects obviously have to be combined after highlighting before they are drawn on the screen (16:25-17:55 and Figures 14 and 15 for example)).)

Kinoe clearly teaches the above limitations of rasterizing base graphics data to provide a first initial view of the model, which is clearly stored in the frame buffer of the screen, since it is shown on the monitor it must prima facie be rasterized as recited in the claim. Secondly, Kinoe clearly teaches that the user selects an object for purposes

of highlighting and that the object does exist in the first view or base graphics raster. The selected object has certain attributes that have been established above. Clearly, Kinoe also composites the highlighted object with the original base graphics raster so that it will be displayed on the screen, since the highlighted object is shown as being displayed. Kinoe does not expressly teach the existence of a separate selection graphics raster with the object and then its recombination with the originally present image. **The graphical objects of Kinoe are three-dimensional and therefore constitute NON-RASTER DATA, as raster data is inherently two-dimensional**. Examiner submits that Kinoe teaches a 3D CAD system. Such a CAD system stores data in three-dimensional format, e.g. the data is **not** in raster format (see Figure 5, for example, where it is a "Graphic Object Hierarchy Definition Data". That means that the items on the list are **graphical objects**. Next, as noted in 1:5-2:30, such objects are **three-dimensional**. Therefore, inherently, they cannot be raster data since raster data is two-dimensional, and there is no discussion of textures.

Long very clearly teaches copying an original image to a first data store, and then allowing the user to select a certain portion of it and transferring only that portion to a second data store where it is manipulated. Then the user applies or paints the modified region back to the original image such that only that region is transferred between the data stores, thus speeding up the process since a much smaller amount of data has to be transferred. It is well established that it is not invention to automate a process previously done manually (Venner, In re, 262 F.2d 91, 120 USPQ 193 (CCPA 1958). See MPEP 2144.04). Therefore, having the computer perform such a task e.g. the

specific modification of Long (a certain effect) and then the transfer and composition back would have been an obvious expedient.

With the system of Kinoe, a specific effect (highlighting) is applied to a specific user-selected object. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kinoe to move the object to a separate data store or selection raster, modify it, and then copy it back, since this operation saves memory bandwidth and is known to be more efficient. Thusly, all the limitations of the instant claim are met. Additionally, it is well known in the art that all display and output devices (e.g. monitors, printers, and the like) utilize raster format graphics, which means that it would be prima facie easier for a system to perform all the calculations in hardware, and further combining and compositing raster graphics in hardware is a simple and non-complicated operation compared to using vector graphics, which require compositing in software first and then conversion to raster format for final output, where Kinoe does handle objects in non-raster format (since the objects are three-dimensional data and representations). The Kinoe reference teaches that other methods of manipulating three-dimensional CAD models are slow (see 1:48-2:30) because they are computationally intensive, and copying only the needed object would be more efficient and result in quicker access and better performance (since only some fraction of the total data would need to be transferred), the combination would have been obvious.

As to claim 21, this limitation is a combination of the limitations from various independent claims addressed above. However, examiner will address them in turn.

Firstly, Kinoe assigns highlighting values to graphical objects (see for example Fig. 4, the highlighting attribute 217 in graphical object state table 109), where a graphic object is prima facie composed of pixels, where clearly as set forth by Long the selected object would be in its own memory area (or selection raster) as set forth in the rejection to claim 1 as previously discussed, the rejection to which is incorporated by reference. Kinoe clearly teaches as in Fig. 12 that there is a base reference plane that would be comparable in some ways to the base raster recited in the instant claim, and that there is a graphical object state table that is updated in 565. Clearly, if the object state is updated upon a screen operation, it would be obvious in view of the previously applied references that the changes made in the copy of the object could simply be made to the reference plane or base graphics raster by updating the graphical object state table for the reference plane, and it would be obvious to do so. It would be obvious to perform this limitation in this manner for the reasons set forth below.

Graphical objects are prima facie made of pixels and very clearly those pixels would be altered when the object is.

The explanation for this comes from the database and computer science arts. In databases, it is well known that multiple users can be attempting to access an object concurrently. A classical problem emerges when multiple users are trying to change the state of an object simultaneously; two classic solutions are used to this problem. One is to have a mutex (mutual exclusion) lock on the object such that other threads (users) cannot write or access to that piece of code while it is in use by another process (in most implementations, read access is preserved, though this is not necessarily the case

or required). The other is to create a copy of the object and then alter and perform changes on the copy. Afterwards, the copy is uploaded back to the database and in some way either substituted for the original or the changes are transferred to the original, so that the state is updated in a consistent manner, so that all users reading the object will get the most current version (see for example JP 10-055426A to Hoshi, as relevant to graphic data).

This latter technique is that practiced by Long as above.

In a nutshell, the system of Kinoe teaches a three-dimensional system for interacting with a CAD system, where multiple users might be accessing the system from multiple workstations, and thusly making changes locally to a copy of the object and doing the highlighting in that manner would make sense so that any changes or selections performed by other users would not interfere or be visible to the current user. Further, doing this would require the least amount of data processing on the host system, since the entire object in the parts database would not be altered; only the changes (e.g. the highlighting attribute for selected portions of the object) would be uploaded or made to the object. Motivation and rationale is additionally taken from the rejection to claim 1 above.

As to claim 22,

A method according to claim 21 wherein altering values of pixels from the base graphic raster comprises replacing the values of pixels from the base graphic raster with the highlighting values of corresponding pixels in the selection graphic raster.

As stated above in the rejection to claim 21, the idea from the database art is that when the user makes changes to an object, other users are locked from accessing the object while the changes are recorded, so that everyone that accesses it thereafter will get the fresh or most current copy of the object in question. Therefore, the idea of replacing the pixels in the object is well known in the art, in the sense that it would be obvious that when a user accesses an object in a database with write access, they will obtain a copy of the object in the database to alter, and when the alterations are complete, the object in the database will be replaced with the more current version.

Therefore, the idea of a separate graphics raster containing only the objects in question is well known in the art for the reasons that the system would be able to alter it much faster than having to separate the objects from the base graphics raster and then operate upon them, and more importantly that the system can continue to operate upon the base graphics raster to make other changes and not be held up in processing whilst the user (or other thread or process) is making changes in the specific graphics objects, in the form of highlighting them.

Finally, Long clearly teaches that the corresponding portions of the first image are replaced by the modified portions of the second once the output results are composited together.

As to claim 2,

A method according to claim 1 wherein providing the selection graphic data comprises copying the selected graphic object from the base graphic data.

Long clearly teaches that the data in the second data store 25 is copied from the first data store 17, thusly teaching that the selected graphic object is copied from the base graphics data. In addition, Kinoe teaches that the object itself is manipulated, so it would make sense that such an object would be copied, as discussed in the rejection to claim 1 above.

As to claim 3,

A method according to claim 2 wherein providing the selection graphic data comprises assigning a highlighting attribute to the copied selected graphic object.

Kinoe clearly teaches this limitation in 2:52-60 and 3:1-28, where it is taught that objects are structured in a hierarchy on the display, and that such objects can have various attributes and uses the term 'translucent' to mean 'transparent' in certain contexts, for example in 9:57-10:30 it is clearly taught that the graphical objects can be in highlighted, translucent, and/or translucent highlighted modes. Clearly, this means that each object has an attribute to indicate whether or not it is highlighted. Therefore, it would be obvious that the highlighting attribute would be the user specified change to the copied graphics object as above.

As to claim 44, it would be obvious that if Kinoe can turn on highlighting by changing the highlighting attribute in the state table of Fig. 4, that clearly Kinoe could turn off highlighting in the same manner. Obviously, the change would be made to the layer that the object was on, and then those raster layers would be composited to form the output image as recited in the claim. Motivation and combination is taken from the rejection to claim 1.

Claims 4-16 and 49 are rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe in view of Long as applied to claim 3 above, and further in view of Kang et al (US 6,266,068 B1).

**The term non-transparent is being interpreted by examiner to mean any object that has zero percent transparency. **

As to claim 4,

A method according to claim 3 wherein rasterizing the selection graphic data to yield the selection graphic raster comprises assigning highlighting values only to pixels in the selection graphic raster corresponding to portions of the selected graphic object that are not overlapped by other non-transparent graphic objects.

References Kinoe and Long do not expressly teach this limitation. However, it is well known in the art that three-dimensional graphics rendering systems such as Kinoe (15:47-60) do not display parts that are hidden from view or the portions that overlap thereof. This process occurs for several reasons. Firstly, the three dimensional model in memory is considered with respect to the viewport created by the display device and the rest of the model is discarded (clipping) so that only the portions that are visible are rendered. After this step but before rendering, a process called hidden surface removal is typically performed so that surfaces having a depth that is greater than that of the objects in front of them are eliminated so that they are not drawn and that amount of processing time is saved. Further, as stated before, it is well known in the art of graphical highlighting that only the selected, visible portions would be highlighted – see

for example US 5,696,533 (6:5-35) to Montgomery et al, with the cited column: line references proving this.

Kang et al (US 6,266,068 B1) clearly teaches the existence of multiple graphics planes in Figs. 2 and 3A-3E, and in 2:30-65, where as stated above, one of those layers could be the base graphics raster. Kang clearly teaches that users can select objects; see for example the intra-layer selector 106 in Fig. 1 as taught in 4:19-35. Kang teaches in 11:37-63 that a user can highlight a layer using the input device to select the layer in question, with each layer having a different depth (e.g. see for example Figs. 3A-3E with emphasis on Figs. 3C and 3D with the shaded ellipse having different depths in each, see for example 8:22-46).

Kang further teaches that his system can deal with complex occlusion scenarios (1:38-61), and this is noted in 4:20-35, where layers that occlude or are blended are disclosed, and in 7:10-30 the use of a painter's algorithm is disclosed, where this algorithm is well known in the art to ensure that objects in the scene occlude each other correctly based on depth, except where such objects are blended because they are partially transparent as set forth in 4:20-35 for example.

All that being said, it would be obvious to one of ordinary skill in the art that only the non-occluded portions of such an object would be drawn when a painter's algorithm or similar is used so that the scene is drawn in a realistic manner (excluding pixels that are blended as set forth above). Therefore, since only the portions of the selected graphical object that are not occluded will be drawn, it would be obvious to only highlight the portions that are visible, as the rest of the object will not be drawn anyway.

Motivation to combine the above three references with Kang comes from the fact that it would have been obvious to one of ordinary skill in the art at the time the invention was made that the method of Kang – e.g. only drawing the non-occluded portions of graphical objects – requires less system resources and is therefore inherently faster, more efficient, and requires less powerful hardware to implement than its lack.

As to claim 5,

A method according to claim 4 wherein compositing the base graphic raster and the selection graphic raster comprises altering values of pixels from the base graphic raster which correspond to pixels of the selection graphic raster having highlighting values.

Kinoe clearly teaches as in Fig. 12 that there is a base reference plane that would be comparable in some ways to the base raster recited in the instant claim, and that there is a graphical object state table that is updated in 565. Clearly, if the object state is updated upon a screen operation, it would be obvious in view of the previously applied references, particularly Kang, that the changes made in the copy of the object could simply be made to the reference plane or base graphics raster by updating the graphical object state table for the reference plane, and it would be obvious to do so. It would be obvious to perform this limitation in this manner for the reasons set forth below.

Graphical objects are prima facie made of pixels and very clearly those pixels would be altered when the object is.

The explanation for this comes from the database and computer science arts. In databases, it is well known that multiple users can be attempting to access an object concurrently. A classical problem emerges when multiple users are trying to change the state of an object simultaneously; two classic solutions are used to this problem. One is to have a mutex (mutual exclusion) lock on the object such that other threads (users) cannot write or access to that piece of code while it is in use by another process (in most implementations, read access is preserved, though this is not necessarily the case or required). The other is to create a copy of the object and then alter and perform changes on the copy. Afterwards, the copy is uploaded back to the database and in some way either substituted for the original or the changes are transferred to the original, so that the state is updated in a consistent manner, so that all users reading the object will get the most current version (see for example JP 10-055426A to Hoshi, as relevant to graphic data).

In a nutshell, the system of Kinoe teaches a three-dimensional system for interacting with a CAD system, where multiple users might be accessing the system from multiple workstations, and thusly making changes locally to a copy of the object and doing the highlighting in that manner would make sense so that any changes or selections performed by other users would not interfere or be visible to the current user. Further, doing this would require the least amount of data processing on the host system, since the entire object in the parts database would not be altered; only the changes (e.g. the highlighting attribute for selected portions of the object) would be uploaded or made to the object.

As to claim 6, a method according to claim 2 wherein providing the selection graphic data comprises copying from the base graphic data non-selected objects that overlaps the selected graphic object.

The three base references do not expressly teach this limitation while Kang does. Firstly, the rejection to claim 4 is incorporated by reference in its entirety. As noted therein, occlusion processing is performed on graphical objects. Now, this occlusion processing of Kang that is well known in the art is performed during the rendering process. Therefore, in order to perform occlusion processing, it would be obvious to one of ordinary skill in the art at the time the invention was made to copy objects that overlap with the selected object in order to perform occlusion processing for the reasons set forth in the rejection to claim 4 above.

As to claim 7, a method according to claim 6 wherein the highlighting attribute comprises a color attribute.

Clearly, Kinoe teaches that graphical objects have attributes, including highlighting and transparency, as established above. As is clearly shown in Fig. 13, no parts are highlighted, versus in Fig. 14 one part is highlighted, and it is very clear that the highlighting involves a change in color of the part from these drawings. Also, changing color to indicate highlighting is well known in the art, is trivially obvious, and is an issue of design choice.

As to claim 8, this claim is a duplicate of claim 3. The same rejection is used; while the dependency may vary, the same combination of references is used, and motivation is taken from claim 3 and claim 6.

As to claim 9,

A method according to claim 8 wherein providing the selection graphic data comprises assigning a blank attribute to the copied non-selected objects.

Kinoe teaches very clearly that the "highlighting attribute" 217 in graphical object state table 109 in Fig. 4 has a state of '0' or '1', that is, an object is either designated as highlighted ('1') or not ('0') – see 10:5-35. Objects by default are not highlighted (see for example Fig. 13). User selection and/or action result in highlighting attributes being enabled on specific parts (see Figs. 14 and 15 for example). As stated in the rejection to claim 6, which is incorporated by reference, the objects are copied in order to perform occlusion processing. Therefore, it would be obvious that since objects by default are in a non-highlighted state, and that only the object that the user selects is highlighted, that such non-selected objects would have a blank attribute assigned to them. The wording of the claim ('comprising' language) certainly does not exclude the above scenario.

As to claim 10,

A method according to claim 9 wherein rasterizing the selection graphic data comprises assigning highlighting values to pixels associated with objects having highlighting attributes and assigning non-highlighting values to pixels associated with objects having blank attributes.

Graphical objects prima facie consist of pixels. Therefore, any objects that are assigned highlighting attributes will prima facie have their pixel assigned highlighting values, and likewise pixels in objects that have a highlighting attribute of '0' will be assigned non-highlighting (e.g. normal) values (Kinoe 10:5-35). Clearly, the objects are

rasterized before they are sent to the display device, and clearly the graphical object properties are taken into account when the object is rasterized, and Kang teaches that objects are processed in such a way that rasterizing occurs after altering the various attributes to the desired end state.

As to claim 11, this limitation is a substantial duplicate of claim 5 and that rejection is used herein; the references used are the same.

As to claim 12, a method according to claim 9 wherein the highlighting attribute and the blank attribute each comprise different color attributes.

Kinoe clearly teaches this limitation as set forth in claim 8. Clearly the highlighted attribute is the dark color in Fig. 14 and the blank attribute is the light color, and clearly as taught by Kinoe as set forth in the rejection to claim 9 above, the state of the object when it is highlighted and not highlighted is different. Clearly, the difference in color as shown in Figs. 13 and 14 is sufficient proof that the color attributes are different.

As to claim 13, this claim is a substantial duplicate of claim 4 and the same rejection is used. The only variation is that plural graphical objects are being utilized rather than one graphical object. It would be trivially obvious that if one object were being highlighted, that plural graphics objects could be highlighted (see Kinoe Fig. 14 where one object is highlighted and then in Fig. 15 where more than one object is highlighted). It would be obvious to process them all at the same time, which would save processing overhead in that only one pass of a highlighting operation would have to occur.

As to claim 14, this claim is a duplicate of claim 7 and the same rejection is used.

As to claim 15, this claim is a substantial duplicate of claims 3 and 4; those rejections are incorporated by reference. The only differences are that the claim uses "pixels corresponding to the graphical object", where clearly a graphical object is prima facie made of pixels, and the occlusion limitation of claim 4 is not present. Basically, it would be obvious to assign the highlighting attribute to the pixels of the graphical object (again, see Figs. 14 and 15 of Kinoe).

As to claim 16, this claim is a duplicate of claim 5 and the same rejection is used.

As to claim 49, a method according to claim 2 wherein rasterizing the selection graphic data comprises assigning highlighting values to pixels in an area of the selection graphic raster corresponding to the copied selected graphic object and compositing the base graphic raster and the selection graphic raster comprises patterning areas within the output graphic raster corresponding to the area of the selection graphic raster.

The above claim recites the same limitations as covered in the rejections to claims 3 and 4, which are incorporated by reference while not including the occlusion or overlap portions of claim 4. The last limitation, "patterning areas" is being interpreted using the broadest reasonable interpretation, where "patterning" is taken to mean applying some kind of image, texture, color, etc., to a graphical object. Further it would be obvious that if a user could apply a color to highlight an object, a user could also apply a pattern (texture), which is well known in the art (see Tolmer for proof that such

is well known in the art). Motivation and combination is taken from the rejections to claims 3 and 4 above.

Claims 7 and 49 are rejected under 35 USC 103(a) as unpatentable over Kinoe and Long as applied to claim 3 above, and further in view of Priem (US 4,958,146)

As to claim 7, a method according to claim 6 wherein the highlighting attribute comprises a color attribute.

Clearly, Kinoe teaches that graphical objects have attributes, including highlighting and transparency, as established above. As is clearly shown in Fig. 13, no parts are highlighted, versus in Fig. 14 one part is highlighted, and it is very clear that the highlighting involves a change in color of the part from these drawings. Also, changing color to indicate highlighting is well known in the art, is trivially obvious, and is an issue of design choice. Priem further teaches that objects have foreground and background colors (see abstract) and that drawing planes can be drawn or painted in an inverted (e.g. color-inverted) mode using a Boolean operation (see for example Table 1, 3:35-50), as separate from the 'draw reversed' command). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kinoe/Long to utilize separate attributes for highlighting and transparency.

As to claim 49, a method according to claim 2 wherein rasterizing the selection graphic data comprises assigning highlighting values to pixels in an area of the selection graphic raster corresponding to the copied selected graphic object and

compositing the base graphic raster and the selection graphic raster comprises patterning areas within the output graphic raster corresponding to the area of the selection graphic raster.

The above claim recites the same limitations as covered in the rejections to claims 3 and 4, which are incorporated by reference while not including the occlusion or overlap portions of claim 4. The last limitation, "patterning areas" is being interpreted using the broadest reasonable interpretation, where "patterning" is taken to mean applying some kind of image, texture, color, etc., to a graphical object. In this case, applying an alternate color using one of the raster layers of Priem would comprise "patterning areas," and further it would be obvious that if a user could apply a color to highlight an object, a user could also apply a pattern (texture), which is well known in the art (see Tolmer for proof that such is well known in the art). Obviously a raster layer of Priem could be a pattern and it could obviously use Boolean operations to combine it with another raster layer in a pattern as specified in the claim. Motivation and combination is taken from the rejections to claims 3 and 4 above.

However, it is well known in the art that three-dimensional graphics rendering systems such as Kinoe (15:47-60) do not display parts that are hidden from view or the portions that overlap thereof. This process occurs for several reasons. Firstly, the three dimensional model in memory is considered with respect to the viewport created by the display device and the rest of the model is discarded (clipping) so that only the portions that are visible are rendered. After this step but before rendering, a process called hidden surface removal is typically performed so that surfaces having a depth that is

greater than that of the objects in front of them are eliminated so that they are not drawn and that amount of processing time is saved. Further, as stated before, it is well known in the art of graphical highlighting that only the selected, visible portions would be highlighted – see for example US 5,696,533 (6:5-35) to Montgomery et al, with the cited column: line references proving this. Motivation and rationale are taken from the rejection to claim 7 above.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe and Long as applied to claim 2 above, and further in view of Iwema et al (US PGPub 2003/0214539 A1).

As to claim 17, a method according to claim 2 comprising simplifying the copied selected graphic object.

References Kinoe and Long do not expressly teach this limitation. Reference Iwema teaches a method of highlighting objects, wherein such objects are simplified, as in paragraph [0053], and the graphics of the objects are simplified, as in the last part of the paragraph, where alternative embodiments of the graphical objects can simply change the object to a predetermined color.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the four references above for the reason that Iwema teaches improved methods for highlighting objects, and further teaches that simplifying graphical objects make it easier for them to be processed, e.g. requires less resources. Priem further teaches that objects have foreground and background colors (see

abstract) and that drawing planes can be drawn or painted in an inverted (e.g. color-inverted) mode using a Boolean operation (see for example Table 1, 3:35-50), as separate from the 'draw reversed' command)

As to claim 18, a method according to claim 17 where simplifying the selected graphic object comprises setting a plurality of color attributes of the selected graphic object to specify one color.

Reference Iwema clearly teaches this limitation in [0053], where it is set forth that the object could be made transparent, thusly have a background of red with white stripes (a plurality of color attributes) or other configuration, and that it is then set to a single predetermined color, which clearly meets the limitations of the recited claim, and motivation comes from the parent claim.

As to claim 19, a method according to claim 17 wherein an exposed portion of the selected graphic object has an outline and simplifying the selected graphic object comprises replacing the selected graphic object with a shape bounded by the outline.

Clearly, any object shown on the screen will have an outline (e.g. a graphical object must prima facie have bounds upon it so that it can be properly drawn or rendered (see Kinoe for this)). The system of Iwema clearly teaches that objects can be surrounded with a halo around their outline in [0011-0015]. Further, it is taught that the body of the object can be turned into a predetermined background color, which would imply that the object would be replaced by a shape with that the color – or the bottom window shown in Fig. 2 and designated with cross marks through it.

As to claim 20, this claim is a duplicate of claim 19 (the limitations are the same). While the dependency may be different, the limitation is the same and rejected using the same reference, so the rejection to claim 19 is properly reused herein. Priem further teaches that objects have foreground and background colors (see abstract) and that drawing planes can be drawn or painted in an inverted (e.g. color-inverted) mode using a Boolean operation (see for example Table 1, 3:35-50), as separate from the 'draw reversed' command).

Claims 23-24 and 39 are rejected under 35 USC 103(a) as unpatentable over Kinoe in view of Long as applied to claim 21 above, and further in view of Priem.

As to claim 23,

A method according to claim 21 wherein altering values of pixels from the base graphic raster comprises, for each pixel to be altered, computing a function to modify the value of the pixel to be altered, the function based on at least one of: the value of the pixel to be altered and the highlighting value of the corresponding pixel in the selection graphic raster.

Reference Kinoe teaches that each graphical object is defined by a function (see Fig. 3, object definition data 203). Reference Priem teaches that the raster planes are combined using Boolean operations – see Priem 1:5-21 and the abstract for example. The concept of a "function" clearly includes Boolean functions, and obviously the selection graphic and the base graphic would be on different raster layers (objects having their own layer, as discussed in the rejection to claim 1). Obviously, a Boolean

operation could perform the process of altering pixels from the base graphic raster (e.g. AND), wherein the pixels that were not common to the two graphics layers would be replaced by pixels that were in the selection graphics layer or some similar operation. The rejection to claim 1 is incorporated by reference.

It is well known in the art to use Boolean functions to combine raster objects. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kinoe/Long to allow the use of Boolean functions, since Long teaches that objects may be blended or that they may replace existing pixels in the first image, thusly indicating the use of both "AND" and "OR" logical operators as options. In any case, the user selects such objects, and the function for modification (if they are blended) would be based on both the values of the original pixel and value of the pixel in the selection register, since blending uses the equation presented in 5:17-25. The user is allowed to set the k factor, thusly allowing complete replacement). Further, the ability to use Boolean functions to specify raster ops would allow increased flexibility in how the selected portion was recombined with the original image and give the user the ability to make quick replacements (e.g. for the k=1.0 scenario) without having to specify the k factor directly.

As to claim 24, a method according to claim 23 wherein the function comprises color inversion of the value of the pixel to be altered.

Kinoe and Long do not expressly teach this limitation, but Priem further teaches that objects have foreground and background colors (see abstract) and that drawing planes can be drawn or painted in an inverted (e.g. color-inverted) mode using a

Boolean operation (see for example Table 1, 3:35-50), as separate from the 'draw reversed' command), which clearly meets the limitations of this claim. Motivation and rationale are taken from the rejection to claim 23 above.

As to claim 39, this limitation is clearly taught by Priem, where in 3:57-4:2 he teaches that his system renders video data, and clearly if the system of Kinoe uses raster layers for video objects as set forth in the rejection to claim 1, the rasterizing would prima facie be done by the rendering engine of Priem. It is obvious that any video card that takes graphics layers and composites them is performing rendering. This goes back to the definition of the term 'rendering'. Examiner asserts that Priem contains a rendering engine, and that it would perform rasterization of both the base and selected graphics rasters. Motivation and rationale is taken from the rejection to claim 23 above.

Claims 25-26, 28, and 45 are rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe/Long and Priem as applied to claim 24 above, and further in view of Tolmer et al (US PGPub 2004/0085358). As noted above, applicant's provisional application does **not** in **any** way support color or the specific limitations in these claims. Tolmer has a filing date of October 31, 2002, which is before applicant's US filing date of the instant application, and so is appropriate to use and thusly is eligible prior art under 35 U.S.C. 102(a) and (e).

As to claim 25, a method according to claim 23 wherein the function comprises performing one of a plurality of available color modification operations and wherein computing the function to modify the value of the pixel to be altered comprises selecting one of the plurality of available color modification operations based on the highlighting value of the corresponding pixel in the selection graphic raster and applying the selected color modification operation to the value of the pixel to be altered.

As stated above, graphical objects are prima facie made of pixels, especially ones contained in raster graphics planes or layers.

Kinoe/Long does not expressly teach this limitation, while Priem teaches a plurality of Boolean operations to be used upon raster drawing planes (see for example Abstract and Table 1 – 3:35-50). Tolmer teaches the use of a highlighting system (see Abstract) similar to that of Priem above, but further teaches that such highlighting can comprise inverting the color of graphical objects [0065]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Tolmer with Priem and Kinoe, because Tolmer teaches methods of highlighting objects that allow the user to configure highlighting and inverting options, e.g. to choose the color values and patterns that such highlighting and/or inversion will take and/or use, which would allow the user to more easily perceive highlighting and/or choose colors and/or patterns that the user(s) find aesthetically pleasing and/or easier to see and/or to use (for instance, if the user were colorblind, the use of colors to differentiate highlighting would not be very useful).

As to claim 26, a method according to claim 25 wherein the plurality of color modification operations comprises one or more of: performing color inversion on the value of the pixel to be altered; increasing the value of the pixel to be altered by a predetermined amount; decreasing the value of the pixel to be altered by a predetermined amount; and, setting the value of the pixel to be altered to a predetermined value.

Clearly both Priem and Tolmer are capable of performing color inversion on pixels to be altered. Motivation and combination is taken from the rejection to the parent claim and from motivation in claim 23.

As to claim 28, a method according to claim 27 wherein altering values of selected ones of the pixels from the base graphic raster comprises selectively altering values of pixels in accordance with a pattern.

Tolmer clearly teaches in the Abstract that an ink color stroke and its highlights can be in the form of a pattern, which would clearly constitute the limitations of this claim.

The rejection to Claim 25 is incorporated by reference.

As to claim 45, Tolmer clearly teaches that the strokes can vary in time (see [0076-007], and further that points can be defined with respect to time [0030], both of which would directly suggest that varying the highlighting with respect to time would be an obvious variation. Motivation and combination are taken from the rejection to claim 25 which is incorporated by reference; also, by varying the highlighting with time, it would make it more noticeable, and the system would obviously refresh the image so

that if highlighting were turned off by the user, that change would be reflected in the on-screen image.

Claims 29 and 40 are rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe/Long in view of Priem as applied to claim 23 above, and further in view of Li (US PGPub 2004/0179742 A1, filed 13 March 2003, eligible under 35 U.S.C. 102(e)).

As to claim 29,

A method according to claim 23 wherein compositing the base graphic raster and the selection graphic raster comprises identifying contiguous regions of pixels in the base graphic raster where corresponding pixels in the selection graphic raster have highlighting values.

References Kinoe and Priem do not teach this limitation expressly. Reference Li teaches in claim 1 the use of an algorithm to identify contiguous regions of pixels and put them in one layer and then put the rest of the pixels in another layer, e.g. a method for identifying contiguous regions of pixels in the base graphics as recited in present limitation. This would be effective for the case where there are multiple parts or objects in the base graphics raster that are highlighted and that need to be processed; such a technique would be fast and allow the elements to be easily matched with the objects in the selection graphics raster or layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Kinoe and Priem with that of Li for the reason that Priem allows easy extraction of contiguous regions [0022] and in [0039], where it is taught that such methods can segment out

foreground image regions, which correspond to the foreground colors or images of Priem (1:5-25) for example.

As to claim 40, the rejection to claim 29 is incorporated by reference, as this recites the same limitations as claim 29.

Claims 30 and 41 are rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe, Long, Priem, and Li as applied to claim 29 above, and further in view of Tolmer.

As to claim 30,

A method according to claim 29 wherein altering values of pixels from the base graphic raster comprises altering values of a pattern of selected pixels in the contiguous regions of pixels in the base graphic raster.

Tolmer clearly teaches in the Abstract that an ink color stroke and its highlights can be in the form of a pattern, which would clearly constitute the limitations of this claim. Clearly, when a region is highlight, if it were to assume a pattern, this would be in accordance with the limitations of the instant claim. Further, such highlights would be in the base graphics raster as set forth above. Altering the pixels to perform such limitations is known in the art.

The rejection to Claim 25 is incorporated by reference.

As to claim 41, the rejection to claim 30 is incorporated by reference.

Claims 32 and 34-37 are is rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe in view of Long as applied to claim 1 above, and further in view of Goodwin et al (US 5,818,975).

A method according to claim 1 wherein providing the selection graphic data comprises replicating the base graphic data and modifying non-selected objects in the replicated base graphic data to have blank attributes.

References Kinoe and Priem do not expressly teach this limitation. Reference Goodwin teaches the creation of two separate buffers for processing a digital image having a high dynamic range where the image to be processed is divided into two images, each image having a different range. Each image is processed and then results are recombined. The end result is a system that creates two versions of an image, one containing certain regions having one range, and the other having regions having another range. Obviously, these regions could be on separate raster planes as in Priem. Essentially, the system of Goodwin replicates the screen to perform alterations upon the images therein, and then recombines the separate layers.

Further, the concept of double buffering is well known in the art. In this context, two frame buffers are used, and the images in the frame buffers are swapped so that changes can be made in one buffer and then that buffer will be swapped with the one currently displayed so that changes can be drawn off-screen to avoid flickering, blurring, and lagging displays. The same idea also bears on this situation.

In summary, there are many reasons to replicate the base graphic layer, and two of those reasons and mechanisms have been set forth above.

As for the additional limitation of modifying non-selected objects in the replicated base graphic data to have blank attributes, reference Kinoe teaches, as in Figs.13-15, that by default parts are not highlighted, and that user action can result in a single or multiple portions being highlighted (see for example Figs. 13, 14, and 15 respectively). It would be obvious that non-selected regions or objects should not be highlighted, and to set them to be so configured if they were not already, especially in light of the fact that the default state of Kinoe is to have parts be non-highlighted.

Motivation to combine is taken from the fact that Goodwin would allow the system of Kinoe and Long to handle images that had a higher dynamic range than the monitor displaying them could support, for example in cases with high-dynamic range images from professional-grade digital cameras.

As to claim 34, the rejection to claim 32 is incorporated by reference. The additional limitation of deleting non-selected objects is taught by Goodwin as in Figures 5 and 6, where regions that were NOT R2 or NOT R1 are deleted from the respective images, and replaced with an average R2 or R1 value. Clearly, the idea of deleting objects that do not meet specified criteria is taught by Goodwin, and it would be obvious that if non-highlighted portions had a different dynamic range, they would be deleted. In addition to this, it would be obvious that since Priem teaches the use of ERASE commands, that it would be obvious that one layer containing foreground objects could extract those alone simply by applying an OR operation to the foreground and background raster planes, which would be of great use in techniques such as chroma-keying, which are well known in the art.

As to claim 35, the rejection to claim 32 is incorporated by reference. The additional limitation of modifying selected objects to have highlighting attributes is clearly taught by Kinoe, who teaches setting the highlighting attribute to 1 to enable highlighting as in Fig. 4 and as explained in other rejections previously in the instant Office Action. Kinoe only enables highlighting attributes when the user has selected them. The combination with Goodwin would allow the objects to be modified to have certain average characteristics, as suggested by rendering the undesired portions to have a certain average value of the R2 regions in Figs. 4 and 5 for example. The average characteristics could easily consist of the highlighting color as taught by Kinoe.

As to claim 36, this claim is a duplicate of claim 32, which is incorporated by reference, except the difference is that instead of setting the non-selected objects to have blank properties, they are modified to have non-highlighting attributes. Clearly, as set forth in the rejection to claim 32 above, Kinoe teaches that non-highlighted portions have the highlighted attribute set to zero, which in this case would be comparable to the blank attribute referred to by applicant in claim 32. Further, that would be a trivially obvious variant, since Kinoe only desires the selected objects to be highlighted anyway.

As to claim 37, clearly as shown in Kinoe Figs. 13-15, both the highlighting attribute and the lack thereof are clearly color attributes, and in this case they are the opposite setting of each other. The rejection to claim 32 is incorporated by reference.

**Applicant is reminded that claims 32-37 can also be rejected in view of Iwema. Applicant should carefully consider that reference when amending the claims.

Claim 33 is rejected under 35 USC 103(a) as unpatentable over Kinoe, Long, and Goodwin as applied to claim 32 above, and further in view of Priem.

As to claim 33, clearly as set forth in Kinoe, non-selected / highlighted parts are one color and highlighted/selected parts are another. Furthermore, if the highlighting comprised the inversion taught in Priem (for example, Table 1, 3:35-50), then obviously that would constitute a color attribute. Motivation is taken from the rejection to the parent claim.

It is well known in the art to use Boolean functions to combine raster objects. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kinoe/Long to allow the use of Boolean functions, since Long teaches that objects may be blended or that they may replace existing pixels in the first image, thusly indicating the use of both "AND" and "OR" logical operators as options. In any case, the user selects such objects, and the function for modification (if they are blended) would be based on both the values of the original pixel and value of the pixel in the selection register, since blending uses the equation presented in 5:17-25. The user is allowed to set the k factor, thusly allowing complete replacement). Further, the ability to use Boolean functions to specify raster ops would allow increased flexibility in how the selected portion was recombined with the original image and give the user the ability to make quick replacements (e.g. for the k=1.0 scenario) without having to specify the k factor directly.

Claims 38 and 42-43 are rejected in view of Kinoe and Long as applied to claim 1, and further in view of Hawksworth (US PGPub 2004/0119724 A1).

As to claim 38, a method according to claim 1 wherein the selection graphic data and the base graphic data each comprise a file having a file format and the selection graphic data and the base graphic data have the same file format.

References Kinoe and Long do not expressly teach this limitation. Reference Hawksworth teaches this limitation. Hawksworth teaches in [0016-0018] the use of that invention to extract objects from PostScript files and then apply them as mask data to other objects within the file, which clearly have the same format. It would be obvious to one of ordinary skill in the art the capability to handle vector files – even though those vector files must prima facie be rasterized before they are shown on a monitor – would allow the system of Kinoe and Long to be applied to application such as digital prepress imaging as set forth in Hawksworth, and it would allow the system of Kinoe -- which uses the system employing multiple layers of graphics objects (which are similar to vector file formats) – with Postscript files, which would allow the system to be used for desktop publishing and the like, as taught by Hawksworth.

As to claim 42, the rejection to claim 38 is incorporated by reference. Postscript is known to those of ordinary skill in the art to be a graphic description language, and clearly the rejection to claim 38 teaches that Hawksworth teaches the use of files in that format.

As to claim 43, Postscript is known in the art to have objects defined in vector format, which prima facie requires tags on objects, and also Hawksworth teaches the

use of Tagged Image File Format images, which clearly also uses tags [see 0017-0019]. The rejection to claim 42 is incorporated by reference. Finally, this limitation is well known in the art.

Claim 46 is rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe in view of Long as set forth in the rejection to claim 1 above, and further in view of Spriggs et al (US 6,421,571 B1). Examiner is giving the term 'type' its broadest reasonable interpretation.

As to claim 46,

A method according to claim 1 wherein the base graphic raster includes a plurality of selected graphic objects to be highlighted, the plurality of selected graphic objects including at least graphic objects of first and second types and wherein providing the selection graphic data comprises providing in the selection graphic data an object corresponding to each of the plurality of selected graphic objects and assigning a highlighting attribute to each of the objects, the method comprising assigning different highlighting attributes to objects corresponding to graphic objects of the first and second types.

Firstly, it would prima facie be obvious that there can be graphical objects of different types or classifications within any graphical system – e.g. the graphics objects of Kinoe can be said to be of different types depending on which graphical attributes are selected (e.g. highlighted or not). In any case, Kinoe and Priem do not expressly teach this limitation.

Reference Spriggs is directed to the same problem-solving area, that is the effective communication of information concerning graphical objects using highlighting. Further, in claims 9-11, Spriggs teaches that various graphical objects of different types are shown on the screen in a hierarchical fashion, and further that such objects are known to have different colors assigned to them based on their state, and that the use can highlight them. In light of Spriggs – and design choice rationale, wherein the color of an object has been held to be a matter of design choice and thusly obvious under *In re Seid*, 161 F.2d 229, 73 USPQ 431 (CCPA 1947) and other applicable case – it would have been obvious that a system containing multiple types of objects could obviously highlight them in different colors, where colors are clearly a highlight attribute. In addition to the above reasons, it would have been obvious to one of ordinary skill at the time the invention was made to combine the systems of Kinoe and Priem with Spriggs, as the system of Spriggs would allow the user to highlight different types of graphical objects and 'drill down' to get to the desired part or object, and to do so with two or more different types of part present in one scenario, whereas in Kinoe only one type of object can be highlighted per pass and clearly distinguished, since only one color is utilized.

Claim 47 is rejected under 35 U.S.C. 103(a) as obvious over Kinoe, Long, and Spriggs as applied to claim 46 above and further in view of Mukherjee et al (US 6,664,971 B1).

As to claim 47,

A method according to claim 46 wherein providing in the selection graphic data an object corresponding to each of the plurality of selected graphic objects comprises copying the plurality of selected graphic objects from the base graphic data.

References Kinoe and Long do not expressly teach this limitation. Rather, Long teaches copying a region, and in view of Kinoe at least fairly suggests copying an object, but does not teach copying a plurality of objects. Mukherjee teaches in 5:40-50 that a copy of the graphical object in a memory is drawn to frame buffer and is rasterized during that process. Therefore, the reference teaches creating a copy of the graphical object. Clearly, such an object could be one of the graphical objects of Kinoe as set forth in the rejection to claim 1. Further, it would be obvious that such a copy would indeed be a copy of the selected graphic object from the base layer as set forth in the claim. Motivation for combination of Kinoe, Priem, and Spriggs with Mukherjee comes from the fact that Mukherjee teaches (1:15-2:40) that his system provides significant improvements in anti-aliasing and allows easy anisotropic filtering, both of which were well known to one of ordinary skill in the art at the time the invention was made to be beneficial. Motivation and combination is also taken from the rejection to claim 2.

Claim 48 is rejected under 35 U.S.C. 103(a) as unpatentable over Kinoe, Long, Spriggs, and Mukherjee as applied to claim 47 above, and further in view of Iwema.

As to claim 48, a method according to claim 47 wherein copying the plurality of selected graphic objects comprises simplifying one or more of the plurality of selected graphic objects.

References Kinoe, Priem, Spriggs, and Mukherjee do not expressly teach this limitation. Reference Iwema teaches a method of highlighting objects, wherein such objects are simplified, as in paragraph [0053], and the graphics of the objects are simplified, as in the last part of the paragraph, where alternative embodiments of the graphical objects can simply change the object to a predetermined color.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the four references above for the reason that Iwema teaches improved methods for highlighting objects, and further teaches that simplifying graphical objects make it easier for them to be processed, e.g. requires less resources. Further, as specified in Mukherjee, it would be obvious that such changes would be made to the combined graphical object. Priem further teaches that objects have foreground and background colors (see abstract) and that drawing planes can be drawn or painted in an inverted (e.g. color-inverted) mode using a Boolean operation (see for example Table 1, 3:35-50), as separate from the 'draw reversed' command)

Claim 50 is rejected under 35 U.S.C.103 (a) as obvious over Kinoe, Long, and (Kang/Priem, depending grounds used) in view of Official Notice. **Applicant did not challenge this taking of Official Notice in the last Office Action, therefore it stands as applicant admitted prior art (AAPA).**

As to claim 50,

A method according to claim 49 comprising creating a plurality of output graphic rasters, for each of the plurality of output graphic rasters differently patterning the areas within the output graphic raster, and displaying the plurality of output graphic rasters in rotation.

The references applied to claim 49 do not expressly teach this limitation. However, it is well known in the art of web design to have animated GIF (BMP, JPEG) images, utilizing the HTML 4.0.1 standard tag <img alt="animated eyes" src="eyes.gif" border="0" width="24" height="12"> as an example. Clearly, all the GIFs are within one file, where clearly the system of Priem could contain each image as a separate raster image layer and alternate and/or animate them in the manner set forth in the animated GIF format. Motivation would come from the use of this system for displaying graphics from the web, e.g. showing web page and/or using the system for graphic WYSIWYG layout of webpages and/or graphics overall.

Claim 51 is rejected under 35 U.S.C. 103(a) in view of Kinoe and Long in view of Iwema.

A method according to claim 1 wherein the base graphic raster has a higher resolution than the selection graphic raster.

Kinoe and Priem do not expressly teach this limitation while Iwema in [0078] teaches that in some embodiments that highlighting halo may be anti-aliased for improved resolution, which clearly requires that the halo be composited at a different

resolution than the monitor (e.g. super-sampling). Motivation and combination is taken from the fact that Iwema teaches a highlighting system that generates a glow / halo around a highlighted object that makes it more noticeable. This effect would clearly be useful in the system of Kinoe and make highlighted parts more visible. For at least the reasons above and the system of Iwema clearly teaches that objects can be surrounded with a halo around their outline in [0011-0015]. Further, it is taught that the body of the object can be turned into a predetermined background color, which would imply that the object would be replaced by a shape with that the color – or the bottom window shown in Fig. 2 and designated with cross marks through it. The combination would thusly have been obvious.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Woods

August 30, 2006

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600